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This paper discusses the reinforcement and learning environment used in the educational rehabilitation of male juvenile delinquents in the CASE project conducted at the National Training School for Boys in Washington, D.C. Programed instruction and a system of extrinsic rewards are the experimental basis of this project. (LB)

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EDUCATIONAL THERAPY

A paper presented for the
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All knowledge is built upon the work of others, as well as interpreted and changed through one's own research. This paper reports work built upon many experiences, readings, and personal contact with the following men:

N. Azrin, T. Ayllon, R. B. Fuller, I. Goldiamond, B. F. Skinner

The CASE Project procedures are based upon direct experiences with two educational projects I designed and administered at Southern Illinois University. One, a one-year program for low achievers, The Experimental Freshman Year, and the other a programed course produced with my associate, James Filipczak. This course--now going through its 3rd year--was an automatic presequenced 3-screen contingency oriented course for 260 college sophomores. The two brief reports, CASE I and II, carry their own credits.

EDUCATIONAL THERAPY

Behavior - The Resultant

When a chemist wishes to study the reaction of two elements, he controls not only the quantity and state of his material, but the time and place that they are joined. Because of this methodical measured and controlled procedure, he can write a formula which becomes subject to further tests. Should this new formulation hold under further rigorous experimental control, then a physical truth can be postulated (e.g., when hydrogen is placed with oxygen and a particular electric charge is put into the vicinity, the union produces a material called H_2O which has a physical appearance in three stages: liquid, gas, and solid.)

In human behavior we can have something which initially looks like a similar procedure, but which certainly is not. If we put together in a room a young man of 14 and a young woman of 14, what is the predicted outcome? Obviously, we are not dealing with simple pure elements when we talk about a young man and woman of 14. The environment that they are put into (even if it is carefully measured physically) does not affect them similarly, since environmental cues are not in a historical vacuum. The environment affects the individuals differentially, because the individuals themselves already have had a behavioral history which has been differentially shaped and reinforced.

In human behavior we are dealing with a complex phenomenon. Even if we could state all the elements that we felt were involved in this multi-structured compound called <u>man</u>, and if we could state the total compound, and accurately measure and describe the environment, we could not accurately predict the behavior unless we knew the history of reinforcement for each human. Human behavior, the resultant of the compound of man and his environment, is not a phenomenon which is physical per se--such as the chemical bonding of two elements. Human behavior is a result of the interaction of stimulus events upon a given person who has had a history of reinforcement or is being shaped by a new schedule of

of reinforcement in temporal sequence. People do not "behave" unless there is, in some way, a higher probability that their responding to the environmental cues produces a net result which can be classified as gratifying (rewarding).

A room full of beds in a brothel is a physical cue. The fact that a young sailor has not been with a woman for 6 months describes his level of female deprivation. However, one cannot presume copulation will be the result if a deprived sailor is placed with a willing woman in a room full of beds. There are many possibilities that would prevent copulation, one of course being that he is a homosexual and is not "interested" in women or visa versa. Besides a history of sexual reinforcement it is also necessary to have the physical apparatus in addition to the willing bodies. There are the physical aspects of the environment that can maintain the behavior which is triggered by a stimulus and a reinforcement system (i.e., beds, warmth, shelter from freezing winds, privacy, etc.). Environments (systems made up of parts) have a great effect upon the behavior of the individual because they determine whether or not the behavior can be maintained. Gertrude Stein wrote that "a rose is a rose is a rose is a rose." I would have to amend that to read that "a rose is not a rose, not a rose." In fact, I would be willing more to paraphrase and support Shakespeare's viewpoint, "What's in a name?" "A rose by any other name would smell as sweet." Shakespeare was referring to the consequences of the phenomenon. His point was that the stimulus response system was in the object (rose) and not the name (the particular verbal language stimulus). To further complicate our stimulus response system, verbal stimuli can mean different things to different people.

In our society we have been trained, through a history of successful usage, that the color "white" represents virginity, purity, cleanliness, hospital, etc. There are people who have done much study on the "word association game." However,

the word "white" to an Oriental could certainly signify something else--death. The object color exists equally in different cultures, but even within the same culture a visual or verbal stimulus can have different meanings due to the effect of the history of reinforcement or punishment on the individual. For example, a 12-inch ruler presented to one individual can be a means of assisting him to measure a line and would symbolize nothing more than a measuring tool. This same ruler, presented to a young individual who has had a history of being beaten over the knuckles by a teacher with such a ruler, would trigger a different reaction. It is therefore possible to have different consequences (behavioral responses) to a similar stimulus due to the history of reinforcement or punishment given in the presence of the stimuli. Designing a new schedule of reinforcement, i.e., presenting the same punishing stimulus without the punishment but paring it with a highly rewarding reinforcer, the same stimulus can produce a new response in the same individual. Stimuli are not stimuli. Reinforcers are not reinforcers, and environments are not environments. An analysis of the consequences determine the description of the operant.

The Study of Learning

Learning is not something that exists in a vacuum, for learning is growth. And growth, whether it is in the biological or the physical sense, must be maintained by an evvironment. There is an ecology that maintains learning, and the design and measurement of these supportive factors and the resulting technologies that are required to maintain such an ecology are my concern. As an educator, I am interested in the production and maintenance of learning behaviors. If I am interested in learning, then naturally I should go where the behavior is. One might therefore suppose that a scientist interested in fish should spend his time in underwater fishing and live in a bubble under the lake and observe the behavior of the organism in its "natural" environment, in its true habitat. There is nothing wrong in this approach and certainly men like Fabre in the 19th century

did study a large amount of insect behavior directly as it occurred in the field. It was also Fabre who brought his insects into his laboratory and put them under bell jars and other means of control because there were too many extraneous factors operating which increased the difficulty in his observing those behaviors which were critical.

Although a free society has many environments that sustain learning my research associates from the Institute for Behavioral Research and I have gone to an artificial laboratory (to a federal correctional institution--a relatively controlled environment) to study the behaviors and to design a research project in order to study those factors that can change and maintain learning behaviors.

When we first started CASE I, I was worried whether we could work in a "penal institution". I had preconceptions about prisons and what constituted a free or a restricted environment. I soon learned what the medical profession had learned long before me--that the prison environment presents one of the finest laboratories for human research that is available to researchers in a free society. I soon realized that the university places more constraints on educational research than does the Federal Bureau of Prisons.

In the new CASE II Project at the National Training School for Boys, the population includes rape artists, a homicidal, a psychopathic liar, a thief who steals nothing but housebreaks so that he can receive the joys of ejaculation, one brain damaged youth (as reported by the Hospital staff), illegitimates, perverts, car thieves, muggers and a glue-sniffer. They all have one thing in common, namely they were caught by an officer of the law and sentenced by a judge to a prison. Upon entrance to the prison they became members of a new group. They were "in"; they were inmates.

I have started an educational program for a group of patients at a resident hospital. Sixty percent of these mental patients are between the ages of 13 and 20.

This group is made up of a variety of schizophrenics and obsessionals, drug addicts, alcoholics, sexual perverts, etc. Some are very intelligent and sensitive youngsters who are unable to deal with the present "reality" and frequently attempt suicide. The procedures which we are using at the National Training School, are the same procedures that I am also applying for the bright mental patients. In order to be able to deal with both groups, the mental and the social deviants, who appear topographically different, one needs to understand the supporting cues that maintain both.

The Ecology of Education

All growing organisms must be supported. There are ecological requirements for growth whether they are the biological or physical phenomena. In order to grow, a plant is sustained by solar energy, rain and earth's chemistry as well as the other flora and fauna which may not add only to its growth but, in certain cases, also provide for its death. The American automobile is a complex phenomenon. It could not exist without a reciprocal complex phenomenon called American industry. Automobiles cannot function adequately unless we build roads for them to move upon. Nor can they function very long without a supply of oil, gasoline and tires, some of which are produced from as far as 5,000 miles away. Any building (any manmade or natural environment) is chained with umbilical cords to a sub-organism, street, then on to a next order, city, to a next order which is the surrounding state. I do not know how many people know where the electrical energy comes from which is supporting the air conditioning and the light in the building they are now in. How many people know where the water supply originates, which comes out of the faucet in their home. Yet, without this network of pipelines, these umbilical cords which are under the surface of the earth, industrial man could not continue to operate. In the same manner, learning behaviors are not isolated in a vacuum, but are part of a process of growth which require an environment to sustain them.

Learning can be described simply as an additive phenomenon. For example, a child of three confronted for the first time with the written numerations such as 2 + 2 with an = sign will ignore it. Simply, he would not respond appropriately by writing or indicating 4. Through an educational procedure, a child may come to respond with another bit of marking when confronted with the same question at a later time. If he then puts the number 4 which previously (before we had educated him) he could not respond to, we call this learning to add. There is, however, another thing about learning, and that is that it requires not only an environment that produces learning behaviors, but one that maintains the newly acquired material. Each one of us has taken a course in college, in which we were required, for example to "learn calculus". If we have not used calculus, as I have not for at least 18 years, we find that we are unable to pass a simple calculus exam without much review and much study. The question may be asked, "If learning is additive and we have put something into the so-called hopper, why is it not possible to conjure it up?"

The young men that we are dealing with at the N.T.S.B. have all gone to school at some time. Although most of them are dropouts, some of them still can perform some simple skills. Some of them, I am sure, even learned to multiply while in a school classroom. They even might have read Shakespeare. Then they went into their home environment, for example the Cardozo District in the District of Columbia or the East St. Louis slums, to find that the use of Shakespeare had no meaning at home or in the pool hall. Generally, if a young man started to quote Shakespeare in a local pool hall, he would not find a very friendly or supporting group. In fact, his own friends, his peer group, would probably shun him. The difference between studying Julius Caesar in East St. Louis and studying Julius Caesar in the Lab School at the University of Chicago is that the community in Chicago tends to reinforce the children when they discuss such classics and consider it a sign of intelligence (a productive use of verbal behavior--a source of coffee and coke

chitchat). In fact, the parents of the University of Chicago high school population consider it essential for the growth of the young adult; whereas, in East St. Louis the question might be asked, "What's Julius Caesar worth? Will this help me get a job? What use does it have with the gang?" The book itself might be economically worth 50¢ on the open market--but unless there is a group of human beings who would consistently reinforce the above-mentioned slum environmental youngster, Julius Caesar dies indeed by many hands other than Brutus'.

Books (regular or programed) are paper and ink. Films (black and white or color) are cellulose and sound waves, and lectures are "hot minds pushing sound waves". Books, films and lectures become meaningful only when "there is something in it for the receiver." That "something in it" is the required condition for the first input which is then sustained by a schedule of reinforcement and later maintained by an external surrounding environment.

Selecting the Curriculum

In both CASE I and CASE II we do not design educational programs based on the individual's past history. We receive a past written record of the individual about a week after we have interviewed him. This describes the case history--the reasons for his being in the institution. However, these are used only as a beginning means of assisting us in getting acquainted with the youngster. We do not use the history of the patient to design his educational therapy program. Each individual is given a program based upon his measured performance while he is with us. The oral repertoire that he has given us through the interview or the written verbal report sent to us is not the basis for our treatment. Each student-inmate's program is based upon the results of a large series of tests on academic subject skills given upon his arrival and the daily and weekly testing thereafter--specifical on his continuing performance. This prescription differs sharply from the approach of treatment for an institutionalized individual, whether a criminal (a social

deviant) or a mental patient (psychological deviant).

Part of the research objective in both programs, at the N.T.S.B. and at the resident hospital, is that we are attempting to establish a curriculum for educational therapy, a curriculum for the rehabilitation of the youthful offender, the dropout of life, which augments the individual's present repertoire as based upon measurement given to us by a series of tests and not on what he says he does or what other people think he wants to do. The individuals assigned to us at the CASE Project are given an interview when they enter the Project. They are also given specific tests on such areas as multiplication, division, subtraction, and other more complicated tests in reading. General tests such as the Stanford Achievement Tests, which are give to all national high school students, and the Gates Reading Survey are also given. After the individual has gone through these tests and we have been able to determine what his deficiencies are in specific areas (e.g., long division) and in general areas (e.g., reading), he is given a set of programed instruction material based on his present repertoire. Along with these specific programed instruction units, we start him with programed texts, seminars and other course material. We have young men who come to us at the age of 17 years who can hardly read the word "their", but they can read numbers. We start wherever the individual is. For example, if he can read numbers (2 +2) we start there.

Reinforcement

Each individual works on his educational material because there is a payoff. One extrinsic reinforcement set into the system is points; i.e., he is paid off in points when he is right. Each point he receives is equal to 1 penny (in money). We use other means of extrinsic reinforcement so as to create a contingency oriented environment. Specific environmental cues (facilities and signs) help the student to differentiate out his own behaviors. In CASE I learning to do math and respond to programed instruction started first in the classroom area and was extended

into the library and private office. In CASE II, after a history of success in the educational area, materials can be taken into the student's own private bedroom. This private bedroom is designed to sustain the following: it gives him personal privacy. It also gives him a piece of personal property which permits him to invite his friends in, a place where they can gather together in small groups. Also it gives him an area where he can gather his accomplishments, those things he earns and that which he buys and puts up in his own room. He can pin up whatever he wants.

We have "religious" student-inmates--that is, they pin up religious pictures (icons). Most of the young men pin up icons from Playboy magazine. They pin them up for various reasons. Some officers say that the students pin up the nudes so as to help stimulate them for night-time masturbation, or to show the others that they are clean cut (he-man types)--sexy males. Because of the private sleeping arrangement and the ability of the students to rent a private shower, there have been no homosexual incidents. By permitting the students to purchase such magazines as Playboy and by having women on the staff, we have been able to alleviate the "normal" homosexual problems that accompany prison confinement.

In each bedroom area the students have their desk area which at night can be closed up to become part of their locker and storage system. An individual can work in his own room--writing letters, drawing pictures, making models of cars, or doing additional school work. Here we have an environment which has multi-physical stimuli. In that one little room it says, "sleep", "dress", "Man, bring your friends in," "smoke", "hang your coat up", "Let's talk about the outside world", "Let's eat some peanuts", "Let's write a letter to my girlfriend". These are behaviors which are supported by the rules of the establishment and permitted by the physical equipment and space design of the room. In his room the student is permitted to sit up all night and read; both the rules and a private lamp, bed and chair in his room, plus his own ability to read, make that behavior possible.

We have also scheduled special areas which are set up for specified behaviors. The office, upstairs in the educational environment, is solely used for the support of assigned tasks of an academic nature. The question is not whether an individual can take behaviors such as reading and writing, and become able to perform them elsewhere under other environments, for we know this to be true. (I remember, as a young adult, I did my homework on the kitchen table and very often had to break in the middle of my school work so that the family could have dinner. There are people who do their work in bathrooms.) Once there is established a history of performance of a particular skill in great strength (a long history of reinforcement for that skill), an individual can carry that behavior to any other environment which can physically sustain it. A learned behavior although shaped up in one particular environment does not remain the victim of that original environment wherein it was originally supported, so long as the system of reinforcement was generalized. The reason for that is that the environment was not, in the case of reading, the only major discriminating stimulus that supported the behavior.

Reading has built into it a series of reinforcing steps which maintain one's continuing to read. He reads a road sign for information. If one is interested in getting somewhere and wants to know where Williamsburg is, and if the sign says "Williamsburg" and then some words underneath, there is a high probability that he will continue reading the whole sign because he is interested in getting to his destination. We read because there is something in it for us. We read our books in school and take our tests because there is something in it for us. The "something in it for us" might be as follows: Some fathers may pay off a "B" grade with a dollar. Another father might pay $5.00 for an "A". For some college students, the grade is the ticket for staying out of the army--out of Vietnam. Good grades may also permit some young people to hang around college, to socialize or to join the fraternities. Also, good grades may permit some to get through and get that piece of paper called a diploma or degree which would then permit them to go and

join their father's concern. Some of us have become "educated" so that we can spend our time surfing along the beach during vacation, or to buy a car, or to get married, have children and go off to Europe. It also might be that some of us read and learn the material because we "enjoy it", for the sheer pleasure of it--like the scholar and the Jesuit. But, we are not all scholars or Jesuits. Although the American ideal is that everyone should perform at his best level, be a "good Christian", and do "good", our Training School students have demonstrated that they are not maintained by the above stated goals. For them,. and other non-Jesuit types we use an extrinsic immediate reinforcer, money, to start the behavior. Money rather than their love of parents, God and country gets the desired behavior initiated in our students. Some young men, like the Jesuit, are willing to wait for their ultimate reinforcement (God and Heaven), but our student-inmates want to know, "Man, what's the payoff now?" For them, as well as for the bulk of Americans, they work for money.

If we can take as a basic premise that every individual needs to have some payoff, some system of reinforcement, the question we need to ask then is "on what schedule?" The Jesuit will wait until his final hour. The student-inmates that we are dealing with are not willing to wait. They have a history which proves they are not willing to wait for good report cards, diplomas, and the like. Some months back, an incident with one of the student-inmates made that very clear.

When he was assigned to a program he stated, "Man, what's in it for me? If I go and learn all this crap, I'm going to go on being considered a 'nigger' anyway and they're going to s--- all over me." After a moment I said, "You're probably right, but--do you like Coca Cola?" And he said, "Yeah." And I said, "Well, if you give out with the right answers until you get 10 points, you can take these 10 points and you can buy yourself a Coke." He started working.

Now, Coca Cola in the outside world has a specific level of joy. A teenager can buy it if he has 10¢. Numerous young as well as old Americans drink Coca Cola.

They have money and they buy it. It's a fairly good reinforcer when you're thirsty. But in the main prison, these youngsters get Coca Cola only when their parents come to visit and on special holidays. It can be said that they are at a high Coke deprivation level. Consequently, in our first project, CASE I, Coke became one of the strongest reinforcers that we had. The point that I am making relative to the Coca Cola and the young man is that it is important to start with the system of reinforcement which is workable with the individual with which one is dealing. One young man loved to eat potato chips. He would work until he'd earn just enough points so that he could stop to eat. This maintained his work on a sporadic schedule. By programing the prices of the lounge where the potato chips were purchased, he was taught to wait until a later time for his food gratification.

Using money as a generalized reinforcer certainly works in our educational research environment, just as it does in our society. But there are areas of activity which provide types of reinforcement which are equally powerful, and in some areas more powerful, than money. To make the point--a young man, playing basketball in front of his high school friends, sets a difficult basket shot, the girl cheerleaders jump up and down, and the crowd cheers. Money cannot buy that kind of reinforcement. That's what the adolescents refer to as "goodness". This kind of goodness comes out of a specific singular performance in an environment where the successful behavior is immediately reinforced by the peer group. Group reinforcement is extremely powerful. Thus, we programed some of these into the system. For example, not only was the student paid off in points, but when he did well on an exam (earned 100%) the staff was instructed to bring the accomplishment to the attention of all the students and say all kinds of good things like, "Gosh, that was great" or "Man, that's cool" and "Hey, look, Joe got 100%." This is recognition for a task performed. One must not approve just any task, but only those that require some effort and are not available with a minimum of effort--for the student knows the difference--the difference between a task well done and

"mickey mouse". This area of reinforcement is one that the normal academic activity has failed to use constructively. On the other hand, the athletic coaches have used it successfully and have not only maintained but have generated a tremendous amount of activity, but the academic staff primarily relies on long-range goals for all students. The coach rewards bit by bit--an excellent example of a good use of successive approximation. Why is the athlete always running around a track, practicing every day and trying to better his score? "What's in it for him?" It's for that one moment when he runs in the track meet, he succeeds, and everybody cheers. Teenagers need that kind of cheer. (Not only teenagers--but, most of us.)

The social deviant has a history of reinforcement as well as a history of punishment. Both are supported by the adult world as well as his peers. It is the social deviant's peers who deliver both reinforcement and punishment at a level of strength which generally weakens all other signals. When a new youth arrives at the Training School and is scheduled into the regular prison population, he attempts to find a place in the prison society--to seek a spot. Upon arrival he is put to the test by the other inmates. The tests vary by institution, but generally fit into three parts. Test one--will he be submissive sexually? Test two--will he fight for what he feels is his own dignity? He is put under verbal as well as physical abuse. He is called many names, e.g., "punk", and he is regionally and racially ridiculed to determine whether or not he'll fight for his sense of dignity. Test three--how does he shape up to the establishment? Does he "play up" to the officer, etc.? Practically overnight the new student-inmate-patient must find his place in this new community, this institutional society. we must remember that an institution, whether it is a mental or a penal institution, or even an academic institution. is not the everyday "free" society--and presents a difficult challenge, a different set of goals for the young adult.

Schools--A Program for Failure

When institutions plan to deal with an individual in a therapeutic environment (an environment designed to produce specified terminal objectives) an attempt is made to examine his past behavioral record, and prescribe a therapy procedure based upon this past repertoire. In a prison this is referred to as correcting his delinquent actions--therefore, the term "House of Corrections". In our work we attempt to "rehabilitate", by putting in new appropriate behaviors under a schedule of reinforcement while extinguishing antisocial behaviors, the inappropriate ones, by a schedule which is non-reinforcing. The importance of putting in a set of specified academic content performance, with a schedule of reinforcement, is that it programs the individual for success. In our present CASE II laboratory at the N.T.S.B. we have adolescents who have had a long history of failure--both at home and in the school environment. The punishing aspects of failure to perform in these environments produce not only "school dropouts", but dropouts from life. The educational environment is on a variable schedule of early success and is heavily sprinkled with failure. It is a very aversive and punishing environment to a probing student.

Therapists fail to recognize that the schools control the bulk of the early child's and young adult's academic and social development. The student who arrives in class unprepared is under some "anxiety." He hopes the teacher will not call on him to recite or to respond to a question. If called upon and he responds inappropriately with the incorrect answer or says, "I don't know" he places himself in a twofold dilemma. He might be laughed at by his peers, or the teacher might say, "That's incorrect, Johnny. Didn't you do your homework?" In truth, he may have studied, but was unable to understand the material because it was inappropriate for his level or it was poorly written. If he did not study, he certainly was unprepared to answer. Coming to class unprepared is for a teenager like coming to

a swimming party with a bathing suit in the style of the 1920's, or coming to the same party where one is appropriately dressed but cannot swim and, consequently, floaders when pushed into deep water. No youngster would want to go to such a party. To go to such a party where one is dressed inappropriately or can't respond to the demands of the situation is not gratifying. The classroom environment, in such situations for such individuals, has been ungratifying and, therefore, aversive Such a student under such a history of performance, begins to drop farther in his seat to avoid direct contact with the situation. Eventually he escapes the aversive environment by removing himself completely from the punishing situation. He drops out of school.

About ninety per cent of the youngsters at the N.T.S.B. had dropped out of school before being sentenced for their crimes. They have had little or no academic success. Therefore, using programed instruction and placing them at a level where they can successfully perform step by step, we guarantee success for each individual, no matter on what level he begins. This is a very critical part of the therapy in that the individual becomes programed for success in contrast to his past educational environment wherein he was basically programed for failure. Little by little each student-inmate, through this step-by-step process, is finding out that he is able to perform with 90% or better in his work. We do not lower the requirements of the educational work, just as we do not lower the requirements of life. The youngster recognizes the dropping of standards as "mickey mouse", something done for an individual with lower intelligence, for a second class citizen, and he is angered further when this is attempted.

The Second Class Adolescent

If we examine the behavioral repertoire requirements of the American adolescent we find that America demands by both law, business and professional prerequisites, a high school education as a bare minimum for industrial survival and a college education as a necessity for administrative success. The young school dropout

delinquent is aware of these requirements, and statements made to him such as, "Well, you can't read very well, so you won't make high school but why don't you get a job as a plumber's assistant or a laundry presser" only reinforces his initial viewpoint--that he is not very bright and is considered by you to be a second class citizen. If it is "good" and necessary for the free, non-delinquent adolescent to complete school, read and write and be prepared for a new technological revolution then it is necessary and "good" for the delinquent to have the same goals.

The importance of producing a contingency oriented environment which increases academic skills and maintains these newly acquired behaviors is not just to demonstrate and prove a learning thecry and develop an educational technology. These newly acquired educational skills act as a program which reinstates in the young deviant the promise that he can be "normal". "Normal" in this case means that he can be successful in an area where he formerly was unsuccessful and, furthermore, that this success will provide him with the ticket to re-enter the mainstream of the American adolescent world--the public school system and the choices of opportunities that follow. Values are not changed without a new academic grid. The proof is the university, and self-worth is not available to those individuals who are told at the beginning of their rehabilitation program that they cannot be like the rest, that they cannot learn to make the school system, that they should accept their lot (their stupidity).

It might be argued that it is unfair to tell a youngster with an IQ below 100, 90 or 80, that he can learn to read and write and do algebra like the rest of the middle class socially adjusted adolescent group. After all, the school system has not been able to get these youngsters to succeed, and his past academic performance should be ample evidence of his inability to pass. The questions also may be asked, "Why establish false hope? Isn't this a false contract?"

The completed work in CASE I and the new data available to us in CASE II clearly demonstrate that it is not the youngster who has failed, but it is the

public school system and the ecology that maintains that school system that has failed; that it is not the youngster who is mentally bankrupt, but that is the public school system that is bankrupt.

The design and use of new schedules of reinforcement in a contingency oriented environment, the use of programed instruction and the design of a new curriculum, produce academically competent youngsters who now recognize that they are becoming successful in an area which was for them previously failure. This is no longer a laboratory theory but a proven fact.

Scheduling--Machines and People

In CASE I--the early project--the student was asked to do his unit on a teaching machine (a linear program sequence in math or English). Then he was instructed to take his work to the correctional officer. The officer was the individual who not only gave him the work assignment when he wanted to work but also was the individual who corrected his work. If the student's work was satisfactory, 90% or better on the unit, the officer would then assign the student to a booth where he would take a unit test on a machine. His first experience in responding to final exam questions was through this machine, a black box with buttons and lights. This became an important step in the student's developing an ability to deal with his incorrect response to questions.

When a classroom teacher asks a question in front of a class, "What is 2 and 2?' and the student says, "6", the teacher may say, "Johnny, that's wrong. Two and two is four, let me show you." This type of question-response, for a student who already has had a history of incorrect responses, is terribly punishing for the student. Even though the teacher might be very pleasant, it was again another person added to the lengthening chain of people telling him he was wrong. He has been told that he was wrong many times---at home, at church, etc.

In our procedure when we put a student in front of the machine, this machine does not know whether the individual has had a history of incorrect responses, or whether he is white or black. This machine does not know the history of the student's prior commitment. The machine does not know whether the student is a murderer, a rape artist, or if he just stole a car. The machine doesn't know if the student is a bastard or not. This machine has no knowledge of his prior background and the reasons for his commitment. The only thing that this machine can and does respond to is the appropriate answer. In a sense the student has a private unbiased relationship between himself and the machine. This is not the same condition as when a live teacher responds to his answer in front of a group.

By programing a beginning student first on a machine, then programing him more frequently with a human <u>as he becomes proficient</u> (doing greater correct responses in a particular subject matter) he gains a level of reinforcement not only with the subject matter, but with his relationship with the human being. He brings to the teacher a 90% or better successful response level, learned from the program. We might state then, using emotional terms, that he gains a sense of pride and dignity both with his own performance which came about out of being correct (above 90% level performance), and being able to show this success to another human being. Correctness starts to pay off in both points, new skills and successful relationships with people. We have no gauge to judge level of pride. However, when the student comes out saying, "Gee, I got 90% right" or, "I got them all right". This is a verbal response to a successful performance. The difference between getting 90% correct and 100% correct is only 10 points; but the quality of being 100% right on a task when the history of a student has been failure, can be generally described as enormously reinforcing. When a student moves further into the curriculum, we replace the machine with the human being as the main giver of reinforcement. This schedule of a direct human relationship between the student

and the teacher, is brought about not by a prescribed ½ hour meeting set in advance--but by a program need, sequenced and paced by the student's own learning behavior. The program is designed so that the student must go to the teacher to get his program checked. Further, the student must discuss the answers with the teacher. The teacher then asks questions about the material on which the student has already demonstrated a high level of competent performance. In addition, the teacher can then branch off and ask other questions directly relative to the material or questions on another relevant subject. This discourse soon develops into a natural relationship between the student and the teacher based on a prescribe section of learned subject matter. Not many people like to talk about things they are not familiar with or comfortable with.

This socializing procedure, which is based upon a new set of information, is used to build a strong rapport and a history of successful intercourse between two human beings. It is this kind of programed and semi-programed relationship which can go on all during the time a student is involved in an educational environment, a well-designed school. It is not like, "Let's have psychotherapy every Tuesday and Thursday from 3 to 4 p.m.," or "You're to see your counselor every Friday at noon." The educational environment that is sequentially programed, can, by the very nature of the schedule, bring the inadequate individual in contact with another human being at a time when he is equipped to be successful in his initial and therefore continuing relationship.

We found by using this procedure that the student made strides not only in educational behaviors but in social and attitudinal behaviors as well. The data was so gratifying that in the new program, CASE II, we have designed a 4-story, 24-hour contingency-oriented educational laboratory. The entire building, 24 hours a day, maintains learning behavior. It is, in effect, 24 hours of educational therapy. Where and when a student sleeps, eats, makes contact with another student

with a machine, with a group, a program, or a teacher is part of the educational ecology. We do not consider a counselor as a particular individual in a special place where a student goes for help. Every student in this program is being counseled by those people he selects during the day. He talks to his friends, to the librarian, the teacher, the cook, the secretary, the research staff, and visitors. He can select a particular counselor on request, e.g., his minister, psychologist, or caseworker, for which he pays a small professional service fee.

In Conclusion

There are sequential events which lead up to successful complex accomplishments in education; such events are called prerequisites. An accomplished performance in arithmetic, fractions, and decimals, is required before one can successfully study algebra. Algebra can be considered a prerequisite to calculus and so on. There are also prerequisites to social behaviors as well as academic behaviors. There are prerequisites necessary for a successful meeting between individuals--the repertoire needed for one individual to be able and willing to listen as well as talk intelligently to another individual. It is not possible for an individual without any successful verbal repertoire to sit and talk intelligently to a counselor about anything, particularly about something which is as critical and as important as himself--his own interpretation of his own response to the world of people and things. In order to have any mutual rapport each individual must come with some similar set. We cannot preconceive or measure what this past social repertoire is when a juvenile delinquent comes to us at the N.T.S.B. We can test him in math, English, science, history, etc., and therefore we can prescribe an educational curriculum. Such a curriculum can produce in time a new repertoire which will allow the student to participate not only in the educational contract, but it will develop new skills for examining his attitudinal repertoire as well.

Four years ago, in the Experimental Freshman Year at Southern Illinois University, I used a series of books which brought up questions which were

relevant to preparing discussions on the individual's own feelings about his environment, his world and his growing up. For example, "The Turn of the Screw" by Henry James. Seminar discussions of this particular text brought to the students' attention problems which are relevant to the adolescent: Did the young man see the image? Is the image a result of his own sexual guilt or the governess'? What role does the housekeeper play in the story? Using literature in this way forms the background for a discussion about each individual's own ability to perceive his own reality--a means for survival.

I have also used visual cues to discuss problems of adjustment. Recently I gave a one-month course on The Visual Language to the student-inmates at the N.T.S.B. Example: We were discussing the effect of one color surrounding a small square of color. I had mimiographed some open squares on white sheets of paper. The student colored each square red or green. Then he colored the background a different color and checked to see what happened to the square itself. During the criticism the students said, "Gee, it got bigger," or "It got smaller" or "It looks funny; it doesn't look like the same color." This gave me the cue to talk about the effect of environment upon a specific color, or a set event, or an individual, a man. What happens when I am in a different environment? Does it affect me? Do I affect the environment? This kind of procedure, to go from a known input, in this instance a visual one, to a discussion, is another use of programing in known educational behavior as a basis for therapy. Discussing the student's past behavioral repertoire, after both the student and the teacher have an equal set, provides for a rapid contract. This process provides the student with the new grid he needs to examine the appropriateness of his present behaviors.

I find that the "adolescent problem" is no different when a youth is in a correctional institution for social deviants such as the N.T.S.B. or in a mental hospital. In the main, no difference at all. Should the therapist attempt to treat

only the surface differences, then he risks sustaining the present inappropriate behavior of the individual. If the therapist, by the present interview system, responds to those behaviors which are the ones that got the student into the institution in the first place, then the therapist is reinforcing and maintaining the very things which he claims that he is attempting to change, to "cure".

A curriculum, developed on the basis of programing, by successful steps in academic behaviors, can become the useful key--the handle by which any therapist (teacher, psychologist, psychiatrist, etc.) can start to deal with an individual's social and attitudinal behavior problem. Environments can be designed that sustain learning. Learning, putting in new successful behaviors, not unlearning, is the program for successful rehabilitation. The unlearning part is done by the individual differentiating his own behaviors by the newly learned set of values which are imprintable and discoverable through the educational process. Changing a student's values is nothing new for a good university. The success of a university or any academic program is not merely the specific subject matter coursework that is measured by grades and percentages, but the way a student who has matriculated deals with his environment: how he applies this newly found grid, value system, on his own world.

The challenge I see is to teach academic and social prerequisites for appropriate behaviors and to design and produce environments which support and maintain such learning for the rehabilitation of the deviant--the individual whose present behavior is inappropriate to the cues of his environment. This new educational environment is not merely made up of books, films, and programed instruction; it is made up of physical spaces, teachers, students, and other extrinsic systems of reinforcements necessary to form a moving chain of contingencies within an environment. Such an educational ecology is therapeutic.